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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant: S. Ravikumar

Group Art Unit:

Serial No.: 10/766,597

Examiner:

Filed: January 27, 2004

Attorney Docket: RAV-012

Title: Surgical Retractor Apparatus for use with a Surgical Port

I hereby certify that this correspondence is being deposited on this day with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450.

1/17/2006

Jay P. Sbrollini

Date

Honorable Commissioner for Patents
Alexandria, VA 22313

Sir:

PETITION TO MAKE SPECIAL UNDER 37 CFR §1.102 PER MPEP §708.02 VIII

The applicant hereby petitions to have the above referenced application granted special status and be given accelerated examination pursuant to MPEP §708.02 VIII.

Pursuant to the requirements of MPEP §708.02 VIII, the Applicant makes the following statements and/or attaches the following items:

- a) the petition fee of \$130 is attached hereto (any additional fees necessary may be charged to deposit account 07-1732);
- b) the claims in the application are drawn to a "single invention" within the meaning of 35 U.S.C. §121;

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c) a pre-examination search was made and a statement regarding the search is attached, the statement indicating the field of search by class and subclass and indicating that the search was made of U.S. patents in the United States Patent and Trademark Office;

d) a copy of each reference discovered during the search and deemed to be most closely related to the claimed invention is attached hereto; and
e) a detailed discussion of the attached references and how the claimed subject matter is patentable over the references is attached hereto.

The statement regarding the search and the detailed discussion are contained in a document entitled "Search Statement and Detailed Discussion". In addition to the above listed items, an Information Disclosure Statement Form PTO-1449 for the attached references is also attached hereto.

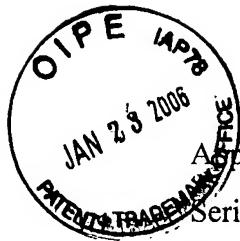
Respectfully submitted,



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1/17/2006

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

SEARCH STATEMENT AND DETAILED DISCUSSION

Pre-Examination Search Statement Pursuant to MPEP §708.02 VIII(c) and

Submittal of Documents Pursuant to Duty of Disclosure

Pursuant to the requirements of MPEP §708.02 VIII, a pre examination search was conducted. The field and scope of the search was directed to:

<u>Class</u>	<u>Subclass</u>	<u>Description</u>
600	184	Surgery: Specula
	201	- Retractor
	203	-- With protective sheath
	210	-- With special blade or retracting surface structure
	214	--- Plural blades on single handle
	215	--- Adjustable (e.g., extendable)
	217	--- With retracting hook, claw, teeth, or barb
	219	-- With cooperating retracting members
	221	--- With auxiliary instrument
	222	--- With means to change parallel distance between blades
	224	--- Three or more members (e.g., trivalve speculum)
	226	-- With special handle

	227	-- With holder
	228	--- Having supporting arm
	231	--- Supporting frame
	235	-- Specific use retractor
128	898	Surgery: Miscellaneous: Methods
604	28	Surgery: Means for introducing or removing material from body for therapeutic purposes (e.g., medicating, irrigating, aspirating, etc.) : Material introduced into and removed from body through passage in body inserted means : Method
606	167	Surgery: Instruments: Cutting, puncturing or piercing
	184	- Punch
	185	- Puncturing or piercing
	190	Surgery: Instruments: Blunt dissectors
	191	Surgery: Instruments: Internal pressure applicator (e.g., dilator)
	198	- Expanding dilator (e.g., expanding arm, etc.)
	205	Surgery: Instruments: Forceps
	206	- Jaws biased to open or closed position
	207	- Jaw structure

Of the patents and published applications located and identified on the enclosed Information Disclosure Statement Form PTO-1449, the following are believed to be most closely related to the claimed invention:

U.S. Patent No. 5,957,902 to Teves

U.S. Patent No. 6,712,795 to Cohen

U.S. Patent Appl. No. 2004/0087833 to Bauer et al.

Detailed Discussion of References Pursuant to MPEP §708.02 VIII(e)

I. Summary of the Invention

An improved surgical apparatus includes at least three rigid retraction disposed about a central axis and a housing with guide slots corresponding to the retraction members. The guide slots direct movement of corresponding retraction members in substantially radial directions with respect to the central axis. The housing supports a

transmission assembly that imparts coordinated movement of said retraction members along the substantially radial directions between a closed state and an open state. In the closed state, the retraction members form a central opening that is adapted to closely fit around the tubular section of a surgical port device. In the illustrative embodiments, the transmission assembly is realized by a planetary gear train, cable assemblies and lever arms that impart the coordinated movement of the retraction members with respect to the central axis.

II. The References

With the invention in mind, the located references will now be described. After the description of the references, the patentability of the claims will be discussed with respect to the teachings and suggestions of the patents.

U.S. Patent No. 5,957,902 to Teves discloses a surgical tool for use with a trocar. The tool includes a plurality of longitudinal members that are spaced in a circumferential relation to one another. The members are bound together by a plurality of longitudinally spaced apart bias members such as rubber bands (FIG. 6). A hollow plunger drives the members radially outward (FIGS. 2 -5). During use, the trocar punctures the cavity and carries part of the leading edge of the longitudinal members. The trocar is withdrawn leaving the longitudinal members in place. The leading edge of the plunger is inserted between the longitudinal members to radially expand them. Surgical tools are inserted through the bore of the plunger.

U.S. Patent No. 6,712,795 to Cohen discloses a retractor that is used to widen a small incision into the abdominal cavity for insertion of a trocar tube. The retractor

includes two blades 91, 92 with the separation distance therebetween controlled by rotation of a knob 30 that moves a crosspiece 58 which supports the blade 91 (FIG. 2 and col. 4, lines 21 – 26). The blades 91, 92 are shaped to conform to the cylindrical outer profile of the trocar tube (col.4, lines 31 – 35).

U.S. Patent App. Pub. No. 2004/0087833 to Bauer et al. discloses a retractor 10 with a carrier ring 20 and four L-shaped members 30 that are guided in guides 22 on the carrier ring 20. The members are independently moved radially with respect to a central axis by finger manipulation (FIGS. 6 – 8 and page 2, paragraph 32). It is contemplated that surgical instruments (for example surgical instruments such as endoscopes or similar devices) can be attached to the carrier ring 22 (page 1, paragraph 12).

III. The Claims

The application contains two independent claims (claims 1 and 13) which have been carefully crafted to define over the prior art. Claim 1 is directed to a surgical retraction apparatus for use with a surgical port device having a tubular section that is operably inserted into tissue. The surgical retraction apparatus includes:

at least three rigid retraction members disposed about a central axis; and
a housing with guide slots corresponding to said retraction members, said guide slots directing movement of corresponding retraction members in substantially radial directions with respect to the central axis, said housing supporting a transmission assembly that imparts coordinated movement of said retraction members along the substantially radial directions between a closed state and an open state, wherein in said closed state said retraction members form a central opening that is adapted to closely fit around the tubular section of the surgical port device.

None of the references teaches or suggests these specific features.

U.S. Patent No. 5,957,902 to Teves discloses a surgical tool for use with a trocar. The tool includes a plurality of longitudinal members that are spaced in a circumferential relation to one another. The members are bound together by a plurality of longitudinally spaced apart bias members such as rubber bands (FIG. 6). A hollow plunger drives the members radially outward (FIGS. 2 -5). Importantly, the retractor of Teves does not employ **a housing with guide slots directing movement of corresponding retraction members in substantially radial directions with respect to the central axis** as recited in the claim. Such guide slots advantageously provide for guided radial movement of the retraction members with a supporting plunger as required by the Teves retractor. Moreover, the retractor of Teves does not employ **a transmission assembly that imparts coordinated movement of at least three retraction members along the substantially radial directions between a closed state and an open state** as recited in the claim. Such features provide for effective control over the radial movement of the at least three retraction members, which is not contemplated by the Teves patent.

U.S. Patent No. 6,712,795 to Cohen discloses a retractor that is used to widen a small incision into the abdominal cavity for insertion of a trocar tube. The retractor includes two blades 91, 92 with the separation distance therebetween controlled by rotation of a knob 30 that moves a crosspiece 58 which supports the blade 91 (FIG. 2 and col. 4, lines 21 – 26). The blades 91, 92 are shaped to conform to the cylindrical outer profile of the trocar tube (col.4, lines 31 – 35). Importantly, the retractor of Cohen does not employ **at least three retraction members** as recited in the claim. Moreover, the retractor of Cohen does not employ **a transmission assembly that imparts coordinated**

movement of at least three retraction members along substantially radial directions between a closed state and an open state as recited in the claim. Such features provide for effective control over the radial movement of the at least three retraction members, which is not contemplated by the Cohen patent.

U.S. Patent App. Pub. No. 2004/0087833 to Bauer et al. discloses a retractor 10 with a carrier ring 20 and four L-shaped members 30 that are guided in guides 22 on the carrier ring 20. The members are independently moved radially with respect to a central axis by finger manipulation (FIGS. 6 – 8 and page 2, paragraph 32). It is contemplated that surgical instruments (for example surgical instruments such as endoscopes or similar devices) can be attached to the carrier ring 22 (page 1, paragraph 12). The retractor of Bauer et al. does not employ **a transmission assembly that imparts coordinated movement of at least three retraction members along the substantially radial directions between a closed state and an open state** as recited in the claim. Such features provide for effective control over the radial movement of the at least three retraction members, which is not contemplated by the Bauer et al. patent. Moreover, the L-shaped retraction members of Bauer et al. do not form **a central opening that is adapted to closely fit around the tubular section of a surgical port device** as recited in the claim. This features provides for more effective and efficient insertion of the retractor into tissue during use as well as providing other benefits afforded by the use of the surgical port device, which are not contemplated by the Bauer et al. patent.

Similar arguments apply to independent claim 13.

The dependent claims 2-12, 14-18 and 27-33 are patentable over the prior art for those reasons advanced above with respect to claims 1 and 13 from which they

respectfully depend and for reciting additional features that are not taught or suggested by the prior art. For example, nowhere does the prior art teach or suggest “a transmission assembly that employs a rotatable member housed with said housing and operably coupled to said retraction members, wherein said rotatable member is rotated to impart coordinated movement of the retraction members in substantially radial directions” as recited in claims 27 and 30.

For the foregoing reasons, the features of the claims are not taught or suggested by the prior art discussed above. In view thereof, the claims of the case are in condition for allowance.

The identified documents are brought to the Examiner's attention because they are known to the applicant and/or the applicant's attorney, as a result of a search being performed, and may be considered by the Examiner to be material to his examination. No inference should be made that the documents are in fact material merely because they are referenced herein. Moreover, by this identification, the Applicants are not making any admission regarding the relative dates of the invention and listed disclosures and is not making any representation that certain patents/publications are in fact "most" relevant just because the Applicants, or their representative, believe them to be.

Respectfully submitted,



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Jay R. Sbrollini

Date

Honorable Commissioner for Patents
Alexandria, VA 22313

Sir:

Prior to examination please amend the present application as follows. As eight (8) claims have been cancelled, with one (1) being independent and seven (7) being dependent, and seven (7) new dependent claims have been added, no additional claim fee is due and no fees are enclosed herewith. If any additional fee is due, please charge the fee to deposit account no. 07-1732.

STATEMENT OF THE CLAIMS

1. (currently amended) A surgical retraction apparatus for use with a surgical port device having a tubular section that is ~~operably~~ inserted into tissue, the surgical retraction apparatus comprising:

at least three a plurality of rigid retraction members disposed about a central axis;

and

a housing with guide slots corresponding to said retraction members, said guide slots directing movement of corresponding retraction members in substantially radial directions with respect to the central axis, said housing supporting a transmission assembly that imparts coordinated movement of said retraction members along the substantially radial directions that move radially with respect to said central axis between a closed state and an open state, wherein in said closed state said retraction members form a central opening that is adapted to closely fit around the tubular section of the surgical port device.

2. (original) A surgical retraction apparatus according to claim 1, wherein:

 said retraction members are L-shaped, each having an arm that projects along a direction substantially parallel to the central axis and a segment that projects along a direction substantially perpendicular to the central axis.

3. (currently amended) A surgical retraction apparatus according to claim 2, wherein further comprising:

the transmission assembly comprises a planetary gear train that ~~controls~~ impart the coordinated radial movement of said retraction members in the substantially radial directions with respect to said central axis.

4. (original) A surgical retraction apparatus according to claim 3, wherein:

 said planetary gear train comprises a drive gear, a sun gear that meshes to said drive gear, and a plurality of planetary pinion gears corresponding to said plurality of retraction members.

5. (currently amended) A surgical retraction apparatus according to claim 4, wherein:

 the section of each retraction member comprises a rack surface that meshes to a corresponding planetary pinion gear to effectuate radial impart movement of the retraction member in its respective substantially radial direction in response to rotation of the drive gear and sun gear operably coupled thereto.

6. (currently amended) A surgical retraction apparatus according to claim 2, wherein further comprising:

the transmission assembly comprises a plurality of cables, operably coupled to said segments of said retraction members, that ~~controls~~ impart the coordinated radial movement of said retraction members in the substantially radial directions with respect to said central axis.

7. (original) A surgical retraction apparatus according to claim 6, wherein:

each one of said plurality of cables, being operably coupled between a corresponding segment and a mounting element affixed to a rotating element, slides past a stationary post corresponding thereto.

8. (currently amended) A surgical retraction apparatus according to claim 2, wherein
~~further comprising:~~

the transmission assembly comprises a plurality of lever arms, operably coupled to said segments of said retraction members, that controls impart the coordinated radial movement of said retraction members in the substantially radial directions with respect to said central axis.

9. (original) A surgical retraction apparatus according to claim 8, wherein:

each one of said plurality of lever arms is operably coupled between a corresponding segment and a mounting element affixed to a rotating element.

10. (currently amended) A surgical retraction apparatus according to claim 1, wherein:

said retraction members form a tubular structure in the closed state that has a diameter in the range between 3 10 mm and 20 mm.

11. (currently amended) A surgical retraction apparatus according to claim 1, wherein:

said retraction members form a broken tubular structure in the open state that has a diameter in the range between 10 30 mm and 50 mm.

12. (original) A surgical retraction apparatus according to claim 1, wherein:

said retraction members are formed from stainless steel.

13. (currently amended) A surgical apparatus comprising:

a surgical port body having a tubular section that is ~~operably~~ inserted into tissue;

and

a retraction subsystem having at least three a plurality of rigid retraction members disposed about a central axis and a housing with guide slots corresponding to said retraction members, said guide slots directing movement of corresponding retraction members in substantially radial directions with respect to the central axis, said housing supporting a transmission assembly that imparts coordinated movement of said retraction members along the substantially radial directions that move radially with respect to said central axis between a closed state and an open state, wherein in said closed state said retraction members form a central opening that is adapted to closely fit around the tubular section of the surgical port body.

14. (currently amended) A surgical apparatus according to claim 13, wherein:

~~said transmission assembly retraction subsystem further comprises a planetary gear train that controls radial imparts the coordinated movement of said retraction members in the substantially radial directions with respect to said central axis.~~

15. (currently amended) A surgical apparatus according to claim 13, wherein:

said transmission assembly retraction subsystem comprises a plurality of cables, operably coupled to said retraction members, that ~~controls radial~~ impart the coordinated movement of said retraction members in the substantially radial directions ~~with respect to said central axis~~.

16. (original) A surgical apparatus according to claim 15, wherein:

each one of said plurality of cables, being operably coupled between a corresponding retraction member and a mounting element affixed to a rotating element, slides past a stationary post corresponding thereto.

15. (currently amended) A surgical apparatus according to claim 13, wherein:

said transmission assembly retraction subsystem comprises a plurality of lever arms, operably coupled to said retraction members, that ~~controls radial~~ impart the coordinated movement of said retraction members in the substantially radial directions ~~with respect to said central axis~~.

16. (original) A surgical apparatus according to claim 15, wherein:

each one of said plurality of lever arms is operably coupled between a corresponding retraction member and a mounting element affixed to a rotating element.

17. (currently amended) A surgical apparatus according to claim 13, wherein:

said retraction members form a tubular structure in the closed state that has a diameter in the range between 3 ~~10~~ mm and 20 mm.

18. (currently amended) A surgical apparatus according to claim 13, wherein:

said retraction members form a broken tubular structure in the open state that has a diameter in the range between 10 30 mm and 50 mm.

19 – 26 (cancelled)

27. (new) A surgical retraction apparatus according to claim 1, wherein:

the transmission assembly comprises a rotatable member housed within said housing and operably coupled to said retraction members, wherein said rotatable member is rotated to impart the coordinated movement of said retraction members in the substantially radial directions.

28. (new) A surgical retraction apparatus according to claim 2, wherein:

the segment of each retraction member is disposed within a respective guide slot.

29. (new) A surgical retraction apparatus according to claim 1, wherein:

said housing has an annular shape.

30. (new) A surgical apparatus according to claim 13, wherein:

the transmission assembly comprises a rotatable member housed within said housing and operably coupled to said retraction members, wherein said rotatable member

is rotated to impart the coordinated movement of said retraction members in the substantially radial directions.

31. (new) A surgical apparatus according to claim 13, wherein:

 said retraction members are L-shaped, each having an arm that projects along a direction substantially parallel to the central axis and a segment that projects along a directional substantially perpendicular to the central axis.

32. (new) A surgical apparatus according to claim 31, wherein:

 the segment of each retraction member is disposed within a respective guide slot.

33. (new) A surgical apparatus according to claim 13, wherein:

 said housing has an annular shape.

REMARKS

It is respectfully submitted that the claims of the present invention are in order for allowance, and prompt allowance is earnestly requested. Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,



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